

ABSTRACT

A method and system for providing a ground strap on a semiconductor device is disclosed. The method and system comprises providing a substrate region and providing an epitaxial (EPI) layer over the substrate region. The method and system includes etching a plurality of device structures in the EPI layer and providing a slot in the semiconductor substrate that is in contact with the substrate region. Finally, the method and system includes oxidizing the slot except at the bottom of the slot and providing a metal within the slot.

In a preferred embodiment, the interconnect consists of a combination of a buried power buss and interconnect layer that, when employed properly, provides the following advantages:

1. Slotted metal having an oxide jacket surrounding it, thus allowing the metal to be connected randomly while isolating itself from other circuit functions.
2. Low interconnect sheet resistance available per function performed.
3. Low $R_{on} \times \text{Area}$ for a given area, where R_{on} is the on resistance of a Bipolar Transistor, or an MOS transistor (when used in a CMOS or BiCMOS configuration).
4. Provides an oxide isolated ground strap that is an ideal short to ground.
5. Provides ground strap throughout the integrated circuit wherever isolation is required between components.
6. Provides a metalized sinker for connecting the collector of a BiPolar transistor to the buried layer, or a metalized drain for connecting the drain to the buried layer of a CMOS device; thus ensuring the lowest collector or drain resistance.
7. Provides a metalized sinker and ground strap while eliminating the masking and long time, high temperature isolation diffusion that is in standard processing.